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Acute confusion in the elderly

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ACUTE CONFUSION IN THE ELDERLY

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ABSTRACT

ACUTE CONFUSION IN THE ELDERLY

by Patricia Ann Jones Kenny

The incidence of acute confusion in the hospitalized elderly and the accuracy of predictions by nurses for acute confusion were studied. The incidence rate, utilizing percentages, was 62.5% for the patients ($N = 8$) in this study. The nurses' ($N = 7$) prediction of accuracy was not statistically significant, using a chi-square test. The obtained x^2 ($df = 7$, $n = 8$) .754 was not significant at the .05 level. The study provided additional data regarding the behaviors exhibited by the patient indicative of confusion. In addition, data were obtained on the rapidity with which acute confusion developed. In view of the small sample sizes, further studies are indicated to validate the incidence rate and to determine the accuracy of nurses' prediction for acute confusion.

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To the nurses and Department Head
of the Orthopedic Unit, whose
support made this study possible;

to my parents, who instilled in me
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Chapter 1

INTRODUCTION

Acute confusional states (ACS) in the hospitalized elderly have not been adequately researched (Foreman, 1986). Indeed, there is a minimal amount of nursing research with hospitalized elderly reported in the literature. Most studies of the elderly have been conducted in nursing homes (Thompson & Steffl, 1984); therefore, knowledge of and care for the acutely ill geriatric patient have not been adequately addressed in gerontological nursing research.

In a study conducted by Oakley (1986), it was estimated that 47% of registered nurse full time equivalents will be needed to care for elderly patients by the year 2000. Elderly patients have increased potential for psychophysiologic complications related to the effects of hospitalization and treatment received therein (Gillick, Serrell, & Gillick, 1982; Lipowski, 1983). Researchers cite an incidence rate of 10-50% for ACS in the hospitalized elderly (Chisholm, Denison, Igrisan, & Barbus, 1982; Williams, Campbell, Raynor, Musholt, Mlynarczyk, & Crane, 1985). With such great numbers of hospitalized elderly patients at risk for developing ACS, the clinical nurse needs more information about ACS for an appropriate standard of practice.

ACS in the elderly hospitalized patient could mean the end of independence, as caregivers often assume that such confusion is a permanent condition. The patient's disposition at discharge may be decided based upon this assumption, with resultant inappropriate institutionalization. The end

result is increased restrictions and risks for the individual and increased cost of care for all (Moody, 1987; Wolanin, 1978).

ACS can be very distressing for the elderly patient, family, and nursing staff. Such concern is warranted. Lipowski (1980, p. 530) states that the risk of complications and of mortality in elderly patients is high. The elderly patient is at risk for falls with resultant fractures (Levkoff, Besdine, & Wetle, 1986). Other risk factors include head injury, cardiovascular collapse, dehydration, or malnourishment if the patient is unable to adhere to medical regimens, such as intravenous therapy (Lipowski, 1980, p. 530). Such complications, in addition to the ACS itself, increase health care costs as a consequence of increased nursing surveillance, and a prolonged length of hospital stay (Williams, Campbell, Raynor, Mlynarczyk, & Ward, 1985). For the elderly patient between the ages of age 65 and 74, the average length of stay was estimated in 1989 at approximately 8.6 days, contrasted with approximately 6.8 days for younger patients 45-64 (National Center for Health Statistics, 1989). Early identification of elderly patients prone to ACS, accompanied by appropriate nursing and medical interventions, could result in significant cost savings for hospitals and better use of funds for other health care needs of the elderly.

Research Questions

A review of the literature suggests the incidence of ACS in the hospitalized elderly has not been well established. The literature also shows a paucity of associated patient characteristics for ACS.

The questions for this study were:

1. What is the incidence of ACS in elderly patients with minor trauma on an orthopedic unit in one community hospital?

2. How accurately can orthopedic nurses predict the development of ACS in elderly patients with minor trauma?

Definitions

The definitions used for the purposes of this study are:

1. Acute confusion: An acute confusional state is theoretically defined as a disturbance in orientation, memory, attention, comprehension, and judgement, and an inability to put cues together to form a meaningful pattern (Foreman, 1986; Williams, Campbell, Raynor, Musholt, Mlynarczyk, & Crane, 1985).

Acute confusion was operationally defined by observation of one of the following behaviors: (a) disorientation to time, place, or person; (b) hypo/hyper activity--such as getting out of bed, removing dressings, or picking at bedclothes; (c) inappropriate communication--nonsense speech, silence, or yelling out; (d) inappropriate behavior; or (e) illusions and/or hallucinations (Williams, Campbell, Raynor, Musholt, Mlynarczyk, & Crane, 1985). Another measure for determining ACS was Pfeiffer's (1975) Short Portable Mental Status Questionnaire (SPMSQ) (see Appendix A). Finally, self reports of confusion, and the medical record were other methods used to search for indicators of acute confusion.

2. Hospitalized: Refers to persons admitted to an acute care hospital for at least 5 days with a diagnosis of fracture, or any type of minor trauma.

3. Elderly: Persons 65 years of age or older.

Purpose of the Study

The elderly are a heterogeneous group of individuals, each of whom think and behave according to past experiences, developmental level, and ability to adapt. With knowledge and understanding of the unique needs of elderly patients, the nurse can better facilitate a return to a healthier state or one of adaptation. Of course, not all elderly patients develop ACS. But the consequent impairments of aging, such as reduced hearing or vision, coupled with the sudden trauma of a hip fracture and hospitalization, for example, can precipitate such a state (Aronheim, 1982).

The treatments often instituted when a patient develops ACS, such as sedating medications and restraints, can cause iatrogenic problems. Physical restraints can result in decreased functional ability (Warshaw, Moore, & Friedman, 1982), skin abrasions, decubiti (Lofgren, MacPherson, Granieri, Myllenbeck, & Sprafka, 1989), and exacerbation of any behavioral or psychological manifestations of the ACS (Strumpf & Evans, 1988). Sedating medications, such as the benzodiazepines or antipsychotics, may have side effects which can increase confusion and disorientation (Barclay, 1985). Other potential side effects include dizziness or postural hypotension which may precipitate falls with a possible injury and prolonged hospitalization (Berggren et al., 1987). Some episodes of ACS can be prevented by nursing actions. Others may be diminished or better managed through improved intervention strategies, beginning with identification of those patients most at risk for developing ACS.

The hospital-based Geriatric Clinical Nurse Specialist (GCNS) has the primary goal of preventing complications in the hospitalized elderly (Koetters, 1989, p. 109). This is accomplished through direct patient care of elderly patients and through educational and consultative activities with the nursing staff. The GCNS imparts knowledge of normal aging changes, development tasks, and special clinical problems of the elderly. Knowledge of altered clinical presentations of the elderly in response to illness would promote better understanding of ACS. The GCNS could also provide clinical support to nurses caring for the patient at risk for or exhibiting signs of ACS. This could improve nursing clinical management of the elderly patient with ACS, and prevent some of the iatrogenic problems associated with physical or chemical restraints (Gillick, Serrell, & Gillick, 1982; Strumpf & Evans, 1988).

Patients and families experience distress with the development of ACS. Nurses aware of general geriatric principles of care, and the incidence and risk factors for ACS could intervene appropriately to prevent or diminish this distress. Kane and Kane (1988) identify confusion as a risk factor leading to institutionalization after hospital discharge. Indeed, the nurse could prevent inappropriate institutionalization based on the implications of Wolanin's (1981) study of ACS in the elderly. Such studies as this will help establish guidelines for care of the elderly. Policy decisions related to care of the elderly in the hospital can have far reaching effects on the hospital community. Educational support, consultation, and assessment skills from a GCNS, combined with clearer institutional guidelines, will improve nursing

care of the elderly patient with ACS. This study will guide future research related to identification of and predictions for the elderly patient with ACS. These data will also direct studies evaluating nursing interventions for the confused elderly patient.

Research Design

This descriptive study: (a) identified the incidence of ACS in the hospitalized elderly patient with minor trauma and (b) asked the nurse admitting the patient to predict whether the patient would develop ACS, and to identify the clinical cues which were used to make the prediction. The study was conducted on a 40-bed orthopedic unit in a 400-bed community hospital. The Institutional Review Board (IRB) at the facility reviewed the proposal, interviewed the researcher, and granted permission to conduct the study (see Appendix B). The IRB of the educational institution in which the researcher was enrolled, also granted approval for the use of human subjects in the study (see Appendix C).

Sample

The participants for the study were selected from all patients admitted to the orthopedic unit with a diagnosis of minor trauma. A sample of convenience was utilized. Inclusion criteria were: (a) patient must be 65 years or older; (b) patient must be alert, intellectually intact, or only mildly impaired at the time of admission; (c) patient must be without history of confusion or dementia, drug or alcohol abuse; (d) patient must be expected to remain hospitalized for a minimum of 5 days; and (3) patient must be able to understand and communicate in English.

Procedures

When the researcher determined that a patient met the inclusion criteria, the patient's nurse was questioned to determine an appropriate time to approach the patient. Permission and patient signature on consent form was obtained (see Appendix D).

The researcher obtained responses to the Pfeiffer SPMSQ (1975) (see Appendix A), and observed the patient for any behaviors indicating ACS. The researcher interviewed the patient, administered the SPMSQ, and reviewed the medical record for the next 4 consecutive days. With patient consent obtained, the researcher approached the patient's admitting nurse for inclusion in the study (see Appendix E).

Chapter 2

CONCEPTUAL FRAMEWORK AND REVIEW OF LITERATURE

Conceptual Framework

The conceptual framework for this study of acute confusion is based on Roy's Adaptation Model (1984). The model presents the person as an adaptive system whose development, behavior, and ability to adapt and obtain optimum health is affected by the internal and external environment (Roy, 1984, p. 21). In Figure 1, one can see that the individual's coping mechanisms (the regulator and cognator) are manifested in behaviors which Roy calls adaptive modes. These behaviors, or responses, reflect the state of the person as well as the type of stimuli.

The internal and external environmental stimuli act upon the person's coping mechanisms, resulting in behavioral manifestations, or adaptive modes that reflect either successful adaptation or ineffective responses. The hospitalized elderly patient exhibits confused behaviors when the internal state is unable to adapt to stimuli received. Roy (1984, p. 60) believes the nurse must assess the person's behavior (adaptive mode) and act in an attempt to manage stimuli, facilitating the person's ability to adapt and seek a healthy state. A knowledge base that enables one to differentiate between pathology and normal aging changes will lead the nurse toward a more accurate assessment of the elderly person's coping mechanisms. The nurse can then accurately and sensitively assess the elderly person's adaptive modes.

Roy (1984, p. 22) perceives the environment as both internal and external stimuli. Stimuli from the internal environment might include a

THE RELATIONSHIP OF AGE RELATED CHANGES AND THEIR EFFECTS ON COPING MECHANISMS AND ADAPTIVE MODES

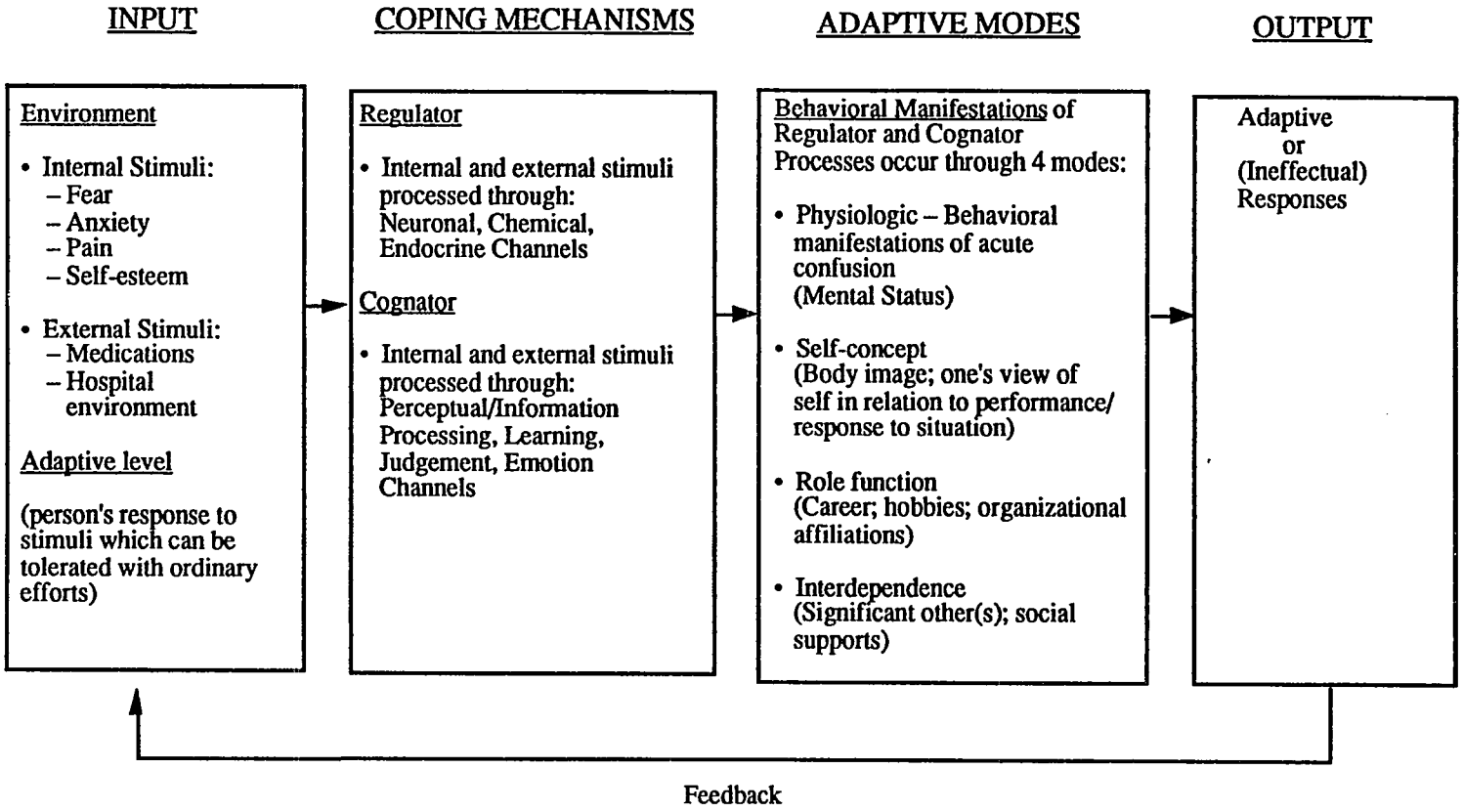

Figure 1. A conceptual framework: Roy's adaptation model (1984) and acute confusion in the elderly (Kenny, 1991).

person's self-esteem and internally held beliefs about self, aging, and ability to survive hospitalization, surgery, and recuperation. Internal stimuli could also include anxiety or fear related to the loss of independence in the hospital and/or diminished quality of life. The pain that one experiences with trauma can also be considered part of the internal environmental stimuli. The anxiety or fear related to the loss of independence might be a large part of the internal stimuli with which the elderly patient must cope. This loss of independence occurs while hospitalized, when a patient needs help to move in or out of bed, or even to toilet oneself. This dependence may continue after hospital discharge, as the patient learns to ambulate safely, utilize an assistive device such as a walker, and bathe in ways that may require assistance from another. This loss of functional independence can negatively affect socialization and quality of life in the elderly person (Edinberg, 1985, p. 26).

The external environment is composed of the hospital's physical, social, and cultural environments (Matteson & McConnell, 1988, p. 730). The physical environment includes temperature, noise, and special equipment for routine activities, such as bedpans or foley catheters for toileting. Also, the use of a call light system is required for communicating one's needs if personnel are not present. Medications provided in the hospital can also be considered as external stimuli with which the elderly person must cope and adapt.

The cultural environment may include different languages of hospital personnel, as well as hospital routines, and lack of privacy. Hospital personnel may also harbor ageism, a "systematic stereotyping of and

discrimination against people because they are old. Ageism allows the younger generations to see older people as different from themselves, thus they subtly cease to identify with their elders as human beings" (Butler, 1975, p. 12). This stereotyping can lead to incorrect expectations of the elderly patient. Some of these inappropriate expectations might include the inaccurate belief that all elderly are frail, need help with activities of daily living, and are confused or demented, and so on. These attitudes can prevent appropriate treatment of the elderly patient. If confusion is expected of all elderly patients, the potential causes for this symptom will not be investigated, with the potential for resultant injury and further illness (Lipowski, 1983). The social environment contains the many hospital caregivers with which the elder must interact. Altered social support results when family and friends' visiting hours are restricted.

The coping mechanisms, or the basic internal control processes of the person, are the regulator and the cognator (Roy, 1984, p. 22). The regulator and cognator mechanisms receive input or stimuli from the internal and external environment. The regulator processes these stimuli through neuronal, chemical, and endocrine channels. The cognator processes stimuli through perceptions, learning, judgement, and emotion pathways. The behavioral manifestations of these processes are called the adaptive modes. The elderly person can have age-related changes in virtually all body systems, with "diminished adaptive capabilities in all organ systems" (Matteson & McConnell, 1988, p. 19). Therefore, the input or stimuli are processed through regulator and cognator channels that have age-related

changes. This may greatly affect the person's ability to process stimuli and make orderly sense of it.

The behavioral manifestations, or adaptive modes, will also be affected. The nurse must be aware of age-related changes in the elderly to avoid inappropriate expectations, and to accurately assess, diagnose, plan, initiate, and evaluate care for the elderly patient.

In summary, Roy (1984, p. 60) believes the nurse's actions should attempt to manage or ameliorate stimuli so as to facilitate the person's ability to adapt. In this way, the nurse may better predict, prevent, and treat acute confusion in this patient population. When predicting ACS, Foreman (1986) recommends cues such as extreme pain, anxiety, or apathy. The level of functioning prior to injury, advanced age, and urine elimination problems were identified as cues by Williams, Campbell, Raynor, Musholt, Mlynarczyk, and Crane (1985). Vision and/or hearing deficits were reported by Lipowski (1983) as possible cues when attempting to predict those most at risk for ACS. It follows that if the nurse observes any one or more of these cues, the patient is likely to show further manifestations of maladaptive or ineffectual responses, such as acute confusion. At that time, the nurse could manipulate certain stimuli to facilitate the elderly patient's health adaptation, and prevent or minimize the occurrence of ACS.

Review of Literature

The incidence of ACS and its risk factors are not well covered in the literature. Foreman (1986) suggests that the difficulty in delineating the

characteristics of ACS and the inherent problems involving methodology and instrumentation make research difficult.

Rates of incidence of ACS in hospitalized elderly vary widely. Liston (1982) reported incidence rates of 10% to 50% in a review of the few epidemiological studies related to ACS. Williams, et al. (1979) reported an incidence rate of 24% in elderly hip fracture patients and identified risk factors for confusion, including confusion prior to hospitalization, decreased post-operative mobility, alteration in urinary elimination, increased age, and male gender. The researchers used methods of testing, observation, and self reports to more accurately identify the phenomenon of confusion. These techniques served to improve internal validity. They also recommended inclusion of non-communicative patients. This feature is lacking in many studies of ACS (Foreman, 1986).

Gillick, Serrell, and Gillick (1982) reported 29.5% of patients over age 70 developed confusion induced by hospitalization. Chisolm, Deniston, Igrisan, and Barbus (1982) reported a daily prevalence rate of 5.5% in patients 60 years and older. They decided not to report confusion during any part of the 11 p.m. to 7 a.m. shift if the patient was asleep. The low prevalence of ACS during the night can be explained by this decision.

Williams, Campbell, Raynor, Musholt, Mlynarczyk, and Crane (1985) reported 51.5% of elderly hip fracture patients developed ACS post-operatively. This study included a thorough conceptual and operational definition of confusion, or ACS, thereby ensuring the possibility of accurate replication. Foreman (1986) states that problems with research of ACS have

been the inconsistent and ambiguous terminology, and definitions of the phenomenon. This study is also the only one to attempt prediction of ACS, although with limited success. Two prediction models were developed and tested on variables at time of admission and during hospitalization. Those variables most significant on admission were age, level of pre-injury activity, and errors on Pfeiffer's (1975) mental status test. The variables identified during hospitalization were age, test errors, altered urinary elimination, and the previous day's test results. Pain, narcotics, and post-operative mobility were next identified as being predictive of confusion during hospitalization. Foreman (1986) recommends including the cues used by clinicians when attempting prediction of ACS such as extreme anxiety, fear, or apathy (Lipowski, 1980, p. 503). Seymour, Henschke, Cape and Campbell (1980) recommend considering specific medical diagnoses that may result in decreased activity.

Other studies (Aronheim, 1982; Lipowski, 1983; Liston, 1984; Wolanin, 1981) have reported predisposing symptoms, including infections, neoplasm, shock, pain, and any condition that results in brain hypoxia. Lipowski (1983) reports that the aging brain and impairment of vision and hearing result in a decreased capacity for resistance to stress. He also identifies facilitating factors, which include psychological stress, alteration in sleep/wake cycle, alteration in sensory stimulation, and immobilization. The elderly patient who has sustained a hip fracture with its resultant pain, immobilization, and hospitalization has certainly experienced all of these factors.

Lipowski (1983) calls for attempts at preventing ACS in the hospitalized elderly, when possible. With greater knowledge of acute confusional states in the hospitalized elderly, nurses can diminish or prevent these states, promote healthy adaptation, and avoid inappropriate nursing home placement of hospitalized elderly at discharge (Wolanin & Phillips, 1981, p. 40).

Summary

In conclusion, research on ACS in the elderly has been fraught with methodological and instrumentation difficulties. Often, the identifying characteristics of ACS were different between studies (Foreman, 1986). This explains the widely varying rates of incidence of ACS in the hospitalized elderly, ranging from 10% to 50% (Liston, 1982). The literature has identified many associated or predisposing factors, or symptoms in attempts to predict the development of ACS. These factors together with Roy's Adaptation Model (1984) guide assessment of an elderly patient's behaviors and manifestations of adaptation abilities in predicting ACS. Based on research findings and the framework provided by these concepts, the nurse can plan interventions to manipulate stimuli and facilitate healthy adaptation (Roy, 1984, p. 60).

Chapter 3

RESEARCH METHODS

Design

This descriptive study investigated the incidence of acute confusional states (ACS) and the percentage of accurate predictions by orthopedic nurses for the development of ACS in the elderly patient. The observations or cues used by the nurses in predicting ACS were also studied.

Sample

The sample consisted of 8 elderly patients and 7 nurses. The patients were those 65 and older admitted to the orthopedic unit of a community hospital with minor trauma. To be included in the patient sample, hospitalization on the orthopedic unit for a minimum of 5 days was required. To be included in the study, each patient must: (a) be alert; (b) have a score on the Pfeiffer (1975) Short Portable Mental Status Questionnaire (SPMSQ) indicating either intact or mild intellectual impairment (see Appendix F for scoring directions); (c) exhibit none of the behaviors indicative of an ACS, defined for this study as hypo/hyper activity, disorientation to time, place, or person, inappropriate communication or behavior, or hallucinations or illusions; (d) be without any history of confusion or dementia, determined from the medical record or family report; and (e) have any surgery within 48 hours of admission.

Methods

Upon the patient's admission to the hospital, the researcher consulted with the admitting nurse to determine if participation in research would be

appropriate for the patient. If no problems were identified, the researcher obtained consent from the patient. The admitting nurse was then approached to participate in the study. After consent was obtained, the nurse was asked to complete the questionnaire (see Appendix G). The completed questionnaire was either returned directly to the researcher in an envelope provided by the researcher or through interdepartmental mail.

Instrumentation

The researcher obtained permission to use the SPMSQ (see Appendix H for permission letter) and administered the questionnaire to the patient within 24 hours of admission to the hospital, and each day thereafter for the next 4 consecutive days. The SPMSQ is a 10-item questionnaire that provides quantitative results and facilitates identification of those elderly patients with an organic brain syndrome (Haglund & Schuckit, 1976). Scoring is interpreted as: (a) 0 to 2 errors (or, 8 to 10 correct), intellectually intact; (b) 3 to 4 errors (or, 6 to 7 correct), mild impairment; (c) 5 to 7 errors (or, 3 to 5 correct), moderate impairment; and (d) 8 to 10 errors (or, 0 to 2 correct), severe impairment (see Appendixes F & I). In scoring the SPMSQ, one is instructed to allow one more error for black participants and for those having only a grade school education. One less error is allowed if the participant has more than high school education (Pfeiffer, 1975).

The test-retest reliability of the instrument was reported as $\underline{r} = .80$ to .83 by Pfeiffer (1975). The interrater reliability, as reported by Fillenbaum and Smyer (1981), was reported to be from $\underline{r} = .62$ to .87, $\underline{p} < .001$. Foreman (1987) reported an internal consistency reliability as $\alpha = .897$.

Criterion related validity was reported to be $r = .63$, $p < .001$ (Haglund & Schuckit, 1976), and $r = .71$, $p < .001$ by Foreman (1987). Construct validity was $r = .84$, $p \leq .001$, as reported by Haglund and Schuckit (1976). Its efficiency is another positive quality of the Pfeiffer (1975) SPMSQ, as it requires approximately 5 to 10 minutes to administer, limiting the burden on the participants to respond (Polit & Hungler, 1987, p. 330).

The questionnaire for participating nurses was developed in consultation with a doctorally prepared member of a nursing faculty and a statistician (see Appendix G). The instrument was pre-tested on a group of five nurses with a variety of nursing backgrounds. It contained fixed alternative questions, with the opportunity for the nurse to add other responses if desired. Also included were demographic data.

Data Collection

The convenience sample was selected from patients admitted to the orthopedic unit, within a 6 month time period, who met the inclusion criteria. Each nurse who admitted these patients to the unit was also included in the study, with consent. Both patient and nurse groups were approached solely by the researcher. When a potential patient participant was identified by the researcher, the nurse caring for the patient was asked about the patient's mental status. If the nurse noted the patient to be cognitively intact and without signs of confusion, the researcher reviewed the medical record for mention of confusion or cognitive impairment. If neither were noted, the researcher approached the patient. If the patient wished to have his/her family present before giving consent, this wish was respected and the

researcher returned when the family was present. The patient was given a consent form which was read aloud by the researcher. The 10-item SPMSQ (Pfeiffer, 1975) was explained to the patient, who then received an explanation of the procedures. If the patient agreed to participate, signed consent was obtained, and a copy of the consent was provided for the patient to keep (see Appendix D). The researcher then administered the questionnaire (Pfeiffer, 1975). If an acceptable score was obtained, the researcher asked the patient to relate any feelings of disorientation or confusion since admission to the hospital. The researcher explained that the questionnaire would be administered again the next 4 consecutive days, with requests for self-reporting of any subjective feelings of confusion or disorientation, or any other significant difficulties. The right to decline further participation in the study at any time, without affecting the services or care rendered, was reiterated during this first encounter. The researcher ended the initial meeting by reminding the patient of a return visit by the same researcher the following day.

Each patient participant was interviewed daily by the researcher over the next 4 consecutive days. The SPMSQ (Pfeiffer, 1975) was administered and the patient was asked to relate any feelings of disorientation or confusion. The researcher observed the patient for any behaviors indicating ACS, and checked the medical record for any documentation of behaviors indicating ACS. After the fifth interview was completed, the researcher reminded the patient participant of the conclusion of the research and appreciation was expressed for the time and effort volunteered to the study.

The nurse who admitted each patient participant was approached by the researcher, either in person or by handwritten note, and asked to consider becoming a participant in the research. Each nurse was given a letter of explanation, a consent form, and a questionnaire (see Appendixes E & G). If the nurse agreed to participate, the signed consent and completed questionnaire could be returned to the researcher in an envelope provided by the researcher. A copy of the consent form was then returned to the nurse. If the nurse refused, the patient remained in the study. Seven nurses agreed to participate; 1 nurse declined.

Each patient and nurse was given a code number, which was placed on each of the five SPMSQ (Pfeiffer, 1975) questionnaires administered. The patient's name and medical record number were kept in a locked file at the researcher's home. The questionnaire administered to the nurses contained the patient code number as the only means of identification. When data entry was completed, all original forms were destroyed.

Summary

In summary, this descriptive study investigated the incidence of ACS in elderly patients with minor trauma, and reported the percentage of accurate predictions by nurses on an orthopedic unit at a community hospital. A convenience sample of 8 patient participants and their admitting nurse (n=7) was used. The Pfeiffer Short Portable Mental Status Questionnaire (1975), a reliable and valid instrument, was the instrument used to identify ACS. The researcher observed each patient for behaviors indicative of ACS, and interviewed each patient participant to obtain self-reports of ACS. The

medical record was reviewed for any reports of behaviors indicating the development of ACS. The nurse participants were administered a questionnaire developed by the researcher in consultation with a nursing department faculty member. The nurses were asked to predict whether the patient would develop ACS during hospitalization, and to report patient behaviors, or cues, used in those predictions.

Chapter 4

ANALYSIS AND INTERPRETATION OF THE DATA

Introduction

One purpose of this study was to determine the incidence of acute confusion in the hospitalized elderly with minor trauma. Another purpose was to determine how often the orthopedic nurse who admits the patient can predict accurately whether the patient will develop ACS. The nurse was also asked to identify which patient cues were used in making this prediction. The patient sample was comprised of 8 elderly patients admitted to the orthopedic unit of a community hospital with hip fracture. The nurse sample was comprised of 7 nurse participants who were employed on the orthopedic unit. The data collected from both patient and nurse samples were analyzed using quantitative and qualitative measures. The data answered the research questions regarding the incidence of ACS and the accuracy of the nurses' predictions for ACS. The study also provided data about the behaviors of the confused patients, how rapidly ACS occurred, ACS cues utilized by the nurse, and demographic data regarding both patient and nurse samples.

Demographic Data from the Patient Participant Sample

The patient participant sample, consisting of 8 patients, was one of convenience, obtained from those elderly patients with hip fracture who were admitted to the orthopedic unit of one community hospital during a 6 month period. The researcher received refusals from 3 other patients when approached for inclusion in the study. There were 5 patients who had

previously diagnosed dementias, and 1 who was experiencing withdrawal from alcohol. These patients were, therefore, not included in the study.

The researcher experienced difficulty in obtaining a larger sample during the 6 month interval because of low hospital census, resulting in fewer admissions to the orthopedic unit of all patients, including those who met the inclusion criteria. After 4 months, the researcher requested and obtained permission to enlarge the potential patient participants from those with hip fracture to those with minor trauma (see Appendix J & K). This change in patient participant sampling did not facilitate data gathering. The unit census remained low, as did patient admissions which fit study criteria. All patients included in the study, therefore, had sustained hip fracture.

The elderly patients included in the study ranged in age from 73 to 95, with the average age of 83. One half of the participants were female, the other half, male. All patients were caucasian. One had completed grade school, 4 were high school graduates, and 3 had obtained education beyond high school.

Demographic Data from the Nurse Participant Sample

The nurse participant sample was determined by the patient participant sample. Of the nurses who admitted the 8 patient participants, 1 refused inclusion in the study, citing difficulty remembering details about the patient. The nurse sample consisted of 7 nurse participant responses.

The demographic data showed the nurses ranged in age from 25 to 49, with the average age being 35 years. The extent of experience in nursing ranged from 3 months to 27 years, making the average number of years

experience in nursing 10. Again, there was a wide range of years of experience on this particular nursing unit. The range was from 3 months to 10 years, with an average of 5.6 years. Four nurse participants had 2 year degrees in nursing, two had 4 year degrees, and one had a graduate degree in nursing. One nurse with a 4 year degree had obtained certification in orthopedic nursing.

Analysis of the Patient Participant Data

The Incidence of Acute Confusion

The first research question for this study asked about the incidence of ACS in elderly hip fracture patients. The incidence of ACS for the patients in this study, utilizing percentages as the statistical method, was 62.5%, or 5 of the 8 patients. This rate was determined utilizing scores on Pfeiffer's Short Portable Mental Status Questionnaire (SPMSQ) (see Table 1), or upon observation of behaviors indicative of ACS (see Table 2). If the SPMSQ scores for any one patient indicated moderate or severe impairment on any of the 5 days, the patient also exhibited at least one behavior of ACS. Those patients whose daily SPMSQ scores indicated intact or only mild impairment, exhibited none of the ACS behaviors.

Behaviors Indicative of Acute Confusion

The behaviors most often exhibited by patients were: (a) disorientation to time, place, or person, seen in 3 of the 5 confused patients, or 60%; (b) hypoactivity, seen in 4 of the 5 patients, or 80%; (c) hyperactivity, in 20%, or 1 of the 5 patients; (d) inappropriate communication, seen in 1 of the 5 patients, or 20%; and (e) illusions/

Table 1

Daily Patient Errors on the Short Portable Mental Status Questionnaire (N = 8)

Individual Patients	Day 1	Day 2	Day 3	Day 4	Day 5
1	4	10	7	7	7
2	4	2	3	8	2
3	2	4	4	4	3
4	0	1	1	1	1
5	4	5	6	5	3
6	1	10	10	6	10
7	2	1	1	1	1
8	5	7	6	7	9

Table 2

Daily Patient Behaviors Indicating Acute Confusion (N = 8)

Individual Patients	Day 1	Day 2	Day 3	Day 4	Day 5
1		A,B	A,C	A	A
2				D	A
3					
4					
5		A,	A,B,E	A	A
6		A,B	A,B	A,D	A,B
7					
8		A,D	A	A,C,D	A,C,D

Note A = Disorientation to either time, place or person

B = Hypoactivity

C = Hyperactivity

D = Inappropriate Communication

E = Illusions/Hallucinations

hallucinations, seen in 2 of the 5 patients, or 40% of those who developed ACS (see Table 2).

In 4 of the 5 patients developing ACS, the second SPMSQ score, obtained on day 2 of hospitalization, indicated the onset of confusion (see Table 1). The period of time between 24 and 48 hours after admission to the hospital seems to be a critical time for development of ACS for the majority of patients in this group. One patient, however, developed confusion on day 4, as evidenced by the SPMSQ score (see Table 1).

Interpretation of the Patient Participant Data

The findings from this study demonstrated an incidence of 62.5% for ACS. This rate is higher than that reported by previous studies of ACS (Chisholm, Deniston, Ingrisan, & Barbus, 1982; Williams, Campbell, Raynor, Musholt, Mlynarczyk, & Crane, 1985). This may be explained, in part, by the number of patients exhibiting hypoactivity as an indicator of ACS. Many previous studies neglected to note and include this group of confused patients (Foreman, 1986).

Confusion developed in most of the patients by day 2 of hospitalization, although one patient who developed ACS did so on day 4 (see Table 1). Behaviors exhibited by this group of confused patients included disorientation, hypoactivity, hyperactivity, inappropriate communication, and illusions or hallucinations (see Table 2). The clinical significance of these behaviors include the potential development of several patient complications, such as pneumonia, fatigue, and inadequate nutrition and hydration. Also, side effects such as lethargy and immobility may result

from chemical and physical restraints used as treatments for the behaviors (Warsaw, Moore, & Friedman, 1982).

Analysis of the Nurse Participant Data

Nurse Prediction of Acute Confusion

The second question for this study asked how accurately nurses can predict ACS. The nurse participants in the study were accurate in predicting ACS in 6 of 7 patients, or 85.7%. Williams, Campbell, Raynor, Musholt, Mlynarczyk, and Crane (1985) noted clinician accuracies of from 42.9% to 77.9%. It should be noted that their study included physicians and nurse clinicians, while this study limited its inclusion of clinicians to nurses. The cues used by the nurses included advanced age, vision deficits, pain or pain medications, a previous medical diagnosis, urine elimination problems, anesthesia or surgery, and difficulty remembering medications taken at home. Chi-square tests indicated the cues used by the nurses were not statistically significant ($\underline{x}^2 = .754$, $\underline{df} = 7$, $\underline{p} = .05$) in predicting ACS. Anecdotal data suggests a trend toward accurate prediction of ACS by this nurse participant sample.

Interpretation of the Nurse Participant Data

Data obtained from this sample appears to support the findings of Williams, Campbell, Raynor, Musholt, Mlynarczyk, and Crane (1985) which indicated the accuracy of clinicians' predictions to be quite high. These researchers stated that clinicians had a wide variety of patient information variables on which to base their predictions. In this study, of the 7 patient participants who had nurse participant predictions, 6 were accurately

predicted to either develop ACS or remain intact or were only mildly impaired. The concept of ACS as a complex human response to a multitude of potential causes or precipitating factors is supported by the multitude of cues utilized by the nurses in their predictions.

Analysis of Patient and Nurse Participant Data

A chi-square test was used to determine a relationship between clinical cues used by the nurse to predict ACS and the development of ACS. The predictor cues were age, vision deficits, pain or pain medications, urinary elimination problems, a previous medical diagnosis, anesthesia or surgery, and difficulty remembering names of medications taken at home. None of these cues were statistically significant ($\underline{x}^2 = .754$, $\underline{df} = 7$) at the .05 level. Anecdotal data indicates a trend toward accurate prediction of ACS by the nurses, suggesting the need for further study utilizing larger patient and nurse samples.

Summary

This descriptive study consisted of a patient participant sample with 8 elderly patients admitted to the orthopedic unit with a diagnosis of hip fracture. The patients ranged in age from 73 to 95. Five of the 8 patients developed ACS during the course of the study, or the first 5 days of hospitalization. The incidence of ACS in this group was 62.5%, somewhat higher than studies previously conducted. Four of those 5 patients with ACS exhibited hypoactivity as one behavior indicative of ACS. Previous studies have neglected this subgroup of patients who may exhibit this behavior (Foreman, 1986). Inclusion of those patients, in addition to the small sample

size, may explain the higher incidence of ACS seen in this study. Other behaviors noted which are indicative of ACS included hyperactivity; disorientation to time, place or person; inappropriate communication, and illusions or hallucinations.

Of the 5 patients developing ACS in this study, 4 did so by day 2 of hospitalization (see Table 1). One patient, however, did not develop ACS until day 4, indicating the need for nurses to be vigilant in their assessment of the elderly patient from admission through the first 4 days of hospitalization, and the entire hospital stay.

Of the 7 nurse participants, 2 had taken gerontological courses. Statistical analysis using chi-square tests did not find the nurses' predictions for ACS statistically significant. Anecdotal data suggests, however, a trend toward accurate prediction for ACS in this small sample. A highly accurate rate of prediction of ACS by clinicians has been shown by previous studies, suggesting the need for further study with larger samples. It is unclear from this study what interventions were taken to prevent or ameliorate the effects of ACS for these patients. Further study of nursing interventions and their effectiveness is, therefore, also indicated.

Chapter 5

CONCLUSIONS AND RECOMMENDATIONS

General Description of the Study

This was a descriptive study of the incidence of ACS in the hospitalized elderly with minor trauma. Patient participant scores on a mental status exam, Pfeiffer's (1975) Short Portable Mental Status Questionnaire or behaviors indicating ACS were utilized to determine ACS. Nurse participants were also studied. The accuracy with which the admitting nurse could predict the development of ACS in the patient participants was reported. Clinical cues used by the nurses in making these predictions were reported.

Summary of the Patient Participant Sample

The patient participant sample consisted of 8 elderly patients admitted to the orthopedic unit of a community hospital. Four of the patients were male, 4 female, and all were caucasian. The ages ranged from 73 to 95. Five of the 8, or 62.5% developed ACS. This rate is higher than previously reported findings. The higher rate may be explained by the small sample size, and by the inclusion in this study of patients exhibiting a hypoactive variant of ACS. Previous studies did not identify and report these patients as confused (Foreman, 1986). Confusion occurred by day 2 of hospitalization in 4 of the 5 patients. One patient developed ACS on day 4 of hospitalization. This supports the need for ongoing assessment and intervention throughout the elderly patient's hospital stay.

The behaviors exhibited by the 5 patient participants indicating ACS included disorientation to time, place, or person; hypoactivity; hyperactivity; inappropriate communication; and illusions or hallucinations.

Summary of the Nurse Participant Sample

The nurse participant sample was comprised of 7 respondents whose ages ranged from 25 to 49. There was a wide range of nursing experience and of nursing tenure on the particular orthopedic unit. One nurse had had 3 months of nursing experience, while another had 27 years of experience. One nurse had been employed on the orthopedic unit for 10 years, another for 3 months. Only one nurse participant had taken continuing education courses with any gerontological content.

The nurses used the following cues in their predictions: (a) advanced age; (b) vision deficits; (c) pain, or pain medications; (d) previous medical conditions/diagnosis; (e) urine elimination problems; (f) anesthesia or surgery; and (g) patient difficulty remembering medications taken at home. Although none of these cues was by itself statistically significant in predicting ACS, $\underline{x}^2$ ($\underline{df} = 7, \underline{n} = 8$) .754, $\underline{p} = .05$, anecdotal data suggested a trend toward accurate predictions for ACS.

Limitations

The study's limitations include small sample sizes for both patient participants and nurse participants. The patients were all caucasian, and the nurses were all female and caucasian. These groups may not, therefore, be representative of all patients with hip fracture who develop ACS, nor of nurses employed on an orthopedic hospital unit.

Recommendations

With increasing numbers of elderly in society, and the predictions for greater numbers of elderly patients in the hospital, more study of the hospitalized elderly is needed. A study with larger numbers of patient and nurse participants, using random sampling and including a control group, would contribute to the body of knowledge of ACS. The inclusion of patients and nurses from more than one hospital site would also increase the generalizability of findings. Of course, further study to identify etiologies of and contributing factors for ACS should continue. Also, studies of nursing interventions for ACS, and their effectiveness, are recommended.

Summary

This study provided data about the phenomenon of ACS. The incidence of ACS in this particular sample was higher than that found in previous studies. The nurses' predictions for ACS were not statistically significant. In the small nurse sample for this study, anecdotal data suggested a trend toward accurate prediction for ACS. In light of the increasing numbers of elderly in the nation, and the projected increase in hospital beds occupied by the elderly, these findings are clinically relevant for the elderly themselves and for the nursing profession.

The patient participant and nurse participant samples in this study were small in number. The vigilance and interventions required of the nursing staff for elderly patients who develop ACS is, however, clinically relevant. Each of the five patients with ACS in this study required ongoing, astute assessment and intervention. Some of the patients' behaviors necessitated the

presence of family members or significant others for much of the hospital stay. Many family members were elderly or in poor health themselves. When family is not available, a hospital may pay an attendant to provide constant monitoring of the confused patient. This results in increased costs for care. The confused patient may sustain injuries or further decline in functional status as a result of ACS, or due to complications of treatment specifically for the confusion. When the elderly patient is so physically or cognitively impaired that return to the home may not be safe, the patient may have to be placed in a skilled nursing facility (SNF). This is a financially expensive option for family, patient, and society. The patient may suffer emotional, cognitive, and psychological trauma from the move to a SNF, and mortality rates in this group may be high (Moody, 1987). In view of the clinically relevant events that occur as a result of ACS, further studies with larger sample sizes are clearly indicated.

These findings are clinically important for the nursing staff. Nurses need to rapidly identify those patients at risk for ACS. They must also continue to assess, plan, and intervene for those elderly patients who may develop ACS later in their hospitalization. The increased intensity of nursing care for each patient with ACS, combined with the costs of hospital care and human suffering, make ACS a difficult syndrome for patients, families, and nurses.

The GCNS can provide ongoing knowledge and skills in the care of the elderly. The clinical support from the GCNS would improve nursing assessment and management of the patient who develops ACS. Some of the

iatrogenic problems associated with ACS and its treatments could be prevented or diminished. With this knowledge, the nurse can differentiate between normal and pathological changes in the elderly. Utilizing Roy's (1984) Model of Adaptation, the nurse would utilize this gerontological knowledge to better assess the patient's coping mechanisms. Manifestations of these coping mechanisms, the adaptive modes, would be accurately assessed. In this case, the patient's mental status would be evaluated more accurately. Such thorough assessment would lead the nurse to intervene by altering stimuli to the patient, thereby facilitating the patient's ability to adapt successfully.

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APPENDIX A

Pfeiffer Short Portable
Mental Status Questionnaire

SHORT PORTABLE MENTAL STATUS QUESTIONNAIRE (SPMSQ)
Eric Pfeiffer, M.D. (1975)

Instructions: Ask questions 1-10 in this list and record all answers. Ask question 4A only if patient does not have a telephone. Record total number of errors based on ten questions.

+	−

1. What is the date today? _____
   Month Day Year
2. What day of the week is it? _____
3. What is the name of this place? _____
4. What is your telephone number? _____
4A. What is your street address? _____
   (Ask only if patient does not have a telephone)
5. How old are you? _____
6. When were you born? _____
7. Who is the President of the U.S. now? _____
8. Who was President just before him? _____
9. What was your mother's maiden name? _____
10. Subtract 3 from 20 and keep subtracting 3 from each new number, all the way down.

_____ Total Number of Errors

To Be Completed by Interviewer

Patient's Code: _____ Date _____

Sex: 1. Male 2. Female

Race: 1. White 2. Black 3. Other

Years of Education: _____

1. Grade School
2. High School
3. Beyond High School

Interviewer's Name: _____

APPENDIX B

Institutional Review Board

Permission to Conduct Research

September 29, 1989

Patricia Kenny, R.N.

Re: Acute Confusional States in the Hospital Elderly; Incidence and Clinician Prediction.

Dear Ms. Kenny:

Thank you for your presentation of the research protocol for the above named study, on September 15, 1989. The members of the Institutional Review Board recommended that approval be granted. Please present an update to the Board in 12 months.

Sincerely,

Chairman, Institutional Review Board

APPENDIX C

Human Subjects Institutional Review Board

Permission to Conduct Research

SJSU SAN JOSE STATE UNIVERSITY

A campus of The California State University

Office of the Academic Vice President • Associate Academic Vice President • Graduate Studies and Research
One Washington Square • San Jose, California 95192-0025 • 408/924-2480

To: Patricia Kenny, Nursing

From: Charles R. Bolz
Office of Graduate Studies and Research

Date: March 8, 1990

The Human Subjects Institutional Review Board has approved your request to use human subjects in the study entitled:

"Acute Confusional States in the Elderly with Hip Fracture"

This approval is contingent upon the subjects participating in your research project being appropriately protected from risk. This includes the protection of the anonymity of the subjects' identity when they participate in your research project, and with regard to any and all data that may be collected from the subjects. The Board's approval includes continued monitoring of your research by the Board to assure that the subjects are being adequately and properly protected from such risks. If at any time a subject becomes injured or complains of injury, you must notify Dr. Serena Stanford immediately. Injury includes but is not limited to bodily harm, psychological trauma and release of potentially damaging personal information.

Please also be advised that each subject needs to be fully informed and aware that their participation in your research project is voluntary, and that he or she may withdraw from the project at any time. Further, a subject's participation, refusal to participate or withdrawal will not affect any services the subject is receiving or will receive at the institution in which the research is being conducted.

If you have any questions, please contact Dr. Stanford or me at (408) 924-2480.

cc: Marcia C. Canton, Ph.D.

APPENDIX D

Patient Participant

Consent Form

Agreement to Participate in Research

at _____ Hospital and San Jose State University

Responsible Investigator: Patricia A.J. Kenny

Title of Protocol: Acute Confusional States in the Hospitalized Elderly: Incidence and Clinician Prediction

I have been asked to participate in a research study that is investigating acute confusional states. The results of the study should further our understanding of the incidence of confusion in the hospitalized elderly and determine the cues used by clinicians to predict acute confusion.

I understand that:

1) I will be asked to answer a short questionnaire (taking approximately five minutes) on the day of admission. I will be asked to answer the same five minute questionnaire each day, for the next four consecutive days.

2) I will be asked to report any subjective feelings of confusion or disorientation.

3) There are no anticipated risks in participation in the study.

4) The possible benefit to me may be early recognition of confusion.

5) The results from this study may be published, but any information from this study that can be identified with me will remain confidential and will be disclosed only with my permission.

6) Any questions about my participation in this study will be answered by Patricia Kenny, _____. Complaints about the procedures may be presented to Dr. Bobbye Gorenberg, San Jose State University Nursing

Department, (408) 924-3130. For questions or complaints about research participants' rights, or in the event of research-related injury, contact Serena Stanford, Ph.D. (Associate Academic Vice President for Graduate Studies) at (408) 924-2480, or _____ Hospital Medical Staff Office at _____.

7) My consent is given voluntarily; I may refuse to participate in this study or in any part of this study, and I may withdraw at any time, without prejudice to my relations with _____ Hospital. Refusal to participate will not affect my rights to receive services.

8) I have received a copy of this consent form for my file.

I have made a decision whether or not to participate. My signature indicates that I have read the information provided above and that I have decided to participate.

_____ _____

Date Subject's signature

_____

Investigator's signature

APPENDIX E

Nurse Participant

Letter and Consent Form

Dear Nurse Colleague,

I am a graduate nursing student at San Jose State University studying acute confusional states (ACS) in the elderly patient for my thesis. I am hoping to learn more about the incidence of ACS in this patient population and the accuracy of nurses' predictions of ACS.

Completing the questionnaire indicates your consent to participate in this pilot study. There will be no identifying information, so your responses will be anonymous. You are not obligated to participate and there are no adverse consequences should you decide not to complete the questionnaire.

Thank you for your consideration.

Sincerely,

Patricia Kenny, RN, Candidate, M.S.,
San Jose State University

Agreement to Participate in Research
at _____ Hospital and San Jose State University

Responsible Investigator: Patricia Kenny, RN

Title of Protocol: Acute Confusional States in the Hospitalized Elderly Patient with Hip Fracture

I understand that I will be asked to complete a questionnaire regarding Acute Confusion. Completion of this questionnaire will take approximately 5 minutes. There are no risks to me in completing this questionnaire, and one possible benefit would be increased knowledge of acute confusion in elderly hip fracture patients on this unit.

Any questions about my participation in the study will be answered by Patricia Kenny, RN, _____. Complaints about procedure may be directed to Dr. Bobbye Gorenberg, San Jose State University Nursing Department, (408) 924-3130. Questions or complaints about research participants' rights, or in the event of research-related injury, contact Serena Stanford, PhD (Associate Academic Vice President for Graduate Studies) at (408) 924-2480, or _____ Hospital Medical Staff Office at _____.

My consent is given voluntarily and without coercement. I may refuse to participate in this study and withdraw at any time without prejudice to my relations with _____ Hospital. Completion of this questionnaire will be done on my time, not on hospital time.

I have received a copy of this consent form for my file.

My signature indicates I have read the information above and I have decided to participate.

_____ _____
DATE PARTICIPANT'S SIGNATURE

_____ _____
DATE INVESTIGATOR'S SIGNATURE

APPENDIX F

Scoring of the Short Portable Mental Status Questionnaire

SCORING OF THE SHORT PORTABLE MENTAL STATUS QUESTIONNAIRE (SPMSQ)

The data suggest that both education and race influence performance on the Mental Status Questionnaire and they must accordingly be taken into account in evaluating the score attained by an individual.

For purposes of scoring, three educational levels have been established: a) persons who have had only a grade level education; b) persons who have had any high school education or who have completed high school; c) persons who have had any education beyond the high school level, including college, graduate school or business school.

For white subjects with at least some high school education, but not more than high school education, the following criteria have been established:

0-2 ERRORS	INTACT INTELLECTUAL FUNCTIONING
3-4 ERRORS	MILD INTELLECTUAL IMPAIRMENT
5-7 ERRORS	MODERATE INTELLECTUAL IMPAIRMENT
8-10 ERRORS	SEVERE INTELLECTUAL IMPAIRMENT

Allow one more error if subject has had only a grade school education.

Allow one less error if subject has had education beyond high school.

Allow one more error for black subjects, using identical education criteria.

APPENDIX G

Nurse Participant Questionnaire for

Acute Confusion

Questionnaire for Acute Confusion

Do you expect this patient to become confused during hospitalization?

- ❒ Yes, almost certain patient will become confused
- ❒ Yes, it's possible patient may become confused
- ❒ No, patient probably will not become confused
- ❒ No, I'm certain patient won't become confused

If confusion is certain or possible (as answered above), what observations or cues have you used in making this prediction?

- ❒ Age
- ❒ Apathy
- ❒ Extreme pain
- ❒ Urinary elimination problems
- ❒ Extreme fear or anxiety
- ❒ Level of functioning prior to injury
- ❒ Vision or hearing deficits
- ❒ Other (please identify)

_____

_____

_____

Please answer the following about yourself:

Age _____

Years in nursing _____

Years experience on this particular unit _____

Educational preparation in nursing _____

Any courses in gerontology? _____

APPENDIX H

Permission to Administer the Pfeiffer Short Portable Mental Status Questionnaire (1975)

SUNCOAST GERONTOLOGY CENTER
UNIVERSITY OF SOUTH FLORIDA
HEALTH SCIENCES CENTER

May 16, 1989

Patricia J. Kenny

Dear Ms. Kenny:

I am writing to hereby grant you permission to use the Pfeiffer Short Portable Mental Status Questionnaire (SPMSQ) for a study by the College of Nursing. A report of the journal article documenting the development of the SPMSQ is enclosed for your information. Also enclosed is a flier describing the availability of user pads of the SPMSQ, with a sample page of the pad.

I would greatly appreciate it if you would please share with us the results of any study or studies utilizing the Pfeiffer SPMSQ. I would also appreciate it if you would accurately cite the enclosed publication as the source of the SPMSQ.

Thank you,

Eric Pfeiffer

Eric Pfeiffer, M.D.
Director

EP:mg
Enclosures

MAILING ADDRESS: 12901 Bruce B. Downs Boulevard, MDC - Box 50, Tampa, Florida 33612-4799
STREET ADDRESS: 10770 North 46th Street, Suite A-1200, Tampa, Florida 33612
(813) 974-4355

APPENDIX I

Instructions for Completion of the Short Portable Mental Status Questionnaire

INSTRUCTIONS FOR COMPLETION OF THE SHORT PORTABLE MENTAL STATUS QUESTIONNAIRE (SPMSQ)

Ask the subject questions 1 through 10 in this list and record all answers. All responses to be scored correct must be given by subject without reference to calendar, newspaper, birth certificate, or other aid to memory.

Question 1 is to be scored correctly only when the exact month, exact date, and the exact year are given correctly.

Question 2 is self-explanatory.

Question 3 should be scored correctly if any correct description of the location is given. "My home," correct name of the town or city of residence, or the name of hospital or institution if subject is institutionalized, are all acceptable.

Question 4 should be scored correctly when the correct telephone number can be verified, or when the subject can repeat the same number at another point in the questioning.

Question 5 is scored correct when stated age corresponds to date of birth.

Question 6 is to be scored correctly only when the month, exact date, and year are all given.

Question 7 requires only the last name of the President.

Question 8 requires only the last name of the previous President.

Question 9 does not need to be verified. It is scored correct if a female first name plus a last name other than subject's last name is given.

Question 10 requires that the entire series must be performed correctly in order to be scored as correct. Any error in the series or unwillingness to attempt the series is scored as incorrect.

APPENDIX J

Institutional Review Board

Permission to Enlarge Patient Population

May 29, 1990

Patricia Kenny, R.N.

Re: Research Protocol

Dear Ms. Kenny:

Thank you for your letter regarding a change in the patient population participating in your study. The Institutional Board reviewed and recommended approval of the requested change, which will allow you to include patients with minor trauma, fractures other than hip fractures and lumbosacral strain in your study. We look forward to receiving an update from you.

Sincerely,

Chairman, Institutional Review Board

APPENDIX K

Human Subjects Institutional Review Board
Permission to Enlarge Patient Population

SJSU SAN JOSE STATE UNIVERSITY

A campus of The California State University

Office of the Academic Vice President • Associate Academic Vice President • Graduate Studies and Research
One Washington Square • San Jose, California 95192-0025 • 408/924-2480

To: Patricia Kenny, Nursing

From: Charles R. Bolz
Office of Graduate Studies and Research

Date: June 21, 1990

The Human Subjects Institutional Review Board has approved your request to use human subjects in the study entitled:

"Acute Confusional States in the Elderly with Hip Fracture (as amended by your request for minor changes dated June 2, 1990)"

This approval is contingent upon the subjects participating in your research project being appropriately protected from risk. This includes the protection of the anonymity of the subjects' identity when they participate in your research project, and with regard to any and all data that may be collected from the subjects. The Board's approval includes continued monitoring of your research by the Board to assure that the subjects are being adequately and properly protected from such risks. If at any time a subject becomes injured or complains of injury, you must notify Dr. Serena Stanford immediately. Injury includes but is not limited to bodily harm, psychological trauma and release of potentially damaging personal information.

Please also be advised that each subject needs to be fully informed and aware that their participation in your research project is voluntary, and that he or she may withdraw from the project at any time. Further, a subject's participation, refusal to participate or withdrawal will not affect any services the subject is receiving or will receive at the institution in which the research is being conducted.

If you have any questions, please contact Dr. Stanford or me at (408) 924-2480.

cc: Marcia Canton, Ph.D.